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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,777	03/25/2004	Eli Margalith		9602

7590
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05/05/2006

EXAMINER

MCMILLAN, JESSICA L

ART UNIT PAPER NUMBER

2877

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/810,777

Applicant(s)

MARGALITH ET AL.

Examiner

Jessica L. McMillan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 5, 8, 9, 10, 13, 15, 16, 17, 18, 21, 22 and 24. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification is silent with respect to "type I bulk non-linear crystal set forth in claim 5.

The disclosure is objected to because of the following informalities: minor typographical errors.

On page 1, line 22, the word "is" (second occurrence) should be replaced with --it-- in the

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sentence “The main drawback of this technique is the length of time it takes to compile the multiple points that make up a spectral image, which limits the practicality of imaging instruments utilizing this approach.”

On page 2, line 2, the word “filers” should be replaced with --filters-- in the sentence that reads “The light from the target is passed through either a set of fixed wavelength transmission filers or tunable filter that passes only a narrow spectral band.” Also, on page 2, line 3, the word “than” should be replaced with --then-- in the sentence that reads, “The light is than collected by an imaging detector array, which operates in the near infrared spectral range.”

On page 7, line 2, the word --of-- should be inserted after “each” in the sentence “The spatial resolution of the image is defined by the field of view of each the sensor (pixel) in the array.” In addition, an --s-- should be placed at the end of the word “sensor” in the noted sentence.

On page 7, line 24, the word --the-- should be placed after “in” in the sentence that reads, “The data may also be presented to the user in form of a two-dimensional picture, color-coded to represent the distribution of the different materials in the tablet.”

In page 8, line 11, the word “were” should be replaced by --where-- in the sentence that reads “This approach may be preferable at NIR wavelengths where some fibers exhibit high transmission losses.”

On page 9, line 19, punctuation is missing at the end of the last sentence of the paragraph.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 and 8-13 are rejected under 35 U.S.C. 102(e) as being anticipated by

Kawakami et al. (US 2005/0226815 A1).

As to claim 1, Kawakami et al. illustrate a spectral imaging device with a narrow band spectrally tunable light source for obtaining multi-spectral images of a target, said device comprising: A) a tunable optical parametric oscillator (Figure 4, OPO) for producing short pulses of light at selected narrow band wavelengths within a broad spectral range, B) a short pulse laser (Figure 4, Nd: YAG laser) driving said optical parametric oscillator, C) one or more optical components (Figure 4, excitation fiber and mirrors) for conveying or directing said short pulses of light to said target, D) a camera (Figure 4, intensified CCD camera) comprising a many pixel array detector, said camera being positioned to obtain multi-spectral images of said target.

As to **claim 2**, Kawakami et al. illustrate the device as in claim 1 wherein said one or more optical components for conveying or directing said short pulses of light to said target is one or more optical fibers (Figure 4, excitation fiber).

As to **claim 3**, Kawakami et al. illustrate the device as in claim 1 wherein said one or more optical components for conveying or directing said short pulses of light to said target comprises refractive or reflective optical elements (Figure 4, the mirrors located between the OPO and the shutter).

As to **claim 4**, Kawakami et al. illustrate the device as in claim 1 wherein said camera is a gated camera synchronized with said optical parametric oscillator to maximize signal to noise ratio (Figure 4, synchronization and electrical delay).

As to **claim 8**, Kawakami et al. illustrate the device as in claim 1 wherein said camera is positioned to monitor reflections from said target.

As to **claim 9**, Kawakami et al. illustrate the device as in claim 1 wherein said camera is in a position capable of monitoring transmission.

As to **claim 10**, Kawakami et al. illustrate the device as in claim 1 wherein said camera is positioned to monitor fluorescence from said target (Figure 4, paragraph [0066]).

As to **claim 11**, Kawakami et al. illustrate the device as in claim 1 wherein said camera is in a position capable of monitoring dichroism.

As to **claim 12**, Kawakami et al. disclose the device as in claim 1 wherein said target is a pharmaceutical product (Paragraph [0011]). Additionally, claim 12 merely sets forth an example of intended use of the device, which does not limit said device.

As to **claim 13**, Kawakami et al. disclose the structure of the device set forth in claim 1. Claim 13 merely sets forth examples of intended use of the device, which does not limit said device.

Claims 1,2,4 and 8-13 are rejected under 35 U.S.C. 102(e) as being anticipated by

Utzinger et al. (US 6,766,184 B2).

As to claim 1, Utzinger et al. illustrate a spectral imaging device with a narrow band spectrally tunable light source for obtaining multi-spectral images of a target, said device comprising: A) a tunable optical parametric oscillator (column 4, lines 8-9) for producing short pulses of light at selected narrow band wavelengths within a broad spectral range, B) a short pulse laser (column 4, lines 8-9) driving said optical parametric oscillator, C) one or more optical components (column 3, lines 12-22) for conveying or directing said short pulses of light to said target, D) a camera (28) comprising a many pixel array detector, said camera being positioned to obtain multi-spectral images of said target.

As to **claim 2**, Utzinger et al. disclose the device as in claim 1 wherein said one or more optical components (column 3, lines 19 and 20) for conveying or directing said short pulses of light to said target is one or more optical fibers.

As to **claim 4**, Utzinger et al. disclose the device as in claim 1 wherein said camera is a gated camera (column 5, lines 36-37) synchronized with said optical parametric oscillator to maximize signal to noise ratio.

As to **claim 8**, Utzinger et al. disclose the device as in claim 1 wherein said camera is positioned to monitor reflections (column 3, lines 34-36) from said target.

As to **claim 9**, Utzinger et al. disclose the device as in claim 1 wherein said camera is in a position capable of monitoring transmissions.

As to **claim 10**, Utzinger et al. disclose the device as in claim 1 wherein said camera is positioned to monitor fluorescence (column 3, lines 34-36) from said target.

As to **claim 11**, Utzinger et al. disclose the device as in claim 1 wherein said camera is

positioned to monitor dichroism (column 3, lines 34-36) of said target.

As to **claims 12 and 13**, Utzinger et al. disclose the structure of the device set forth in claim 1. Claim 12 and 13 merely set forth examples of intended use of the device, which do not limit said device.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5, 6, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Utzinger et al. (US 6,766,184 B2)* in view of *Mead et al. (US 2002/0114553)*.

As to **claims 5, 6, and 14**, Utzinger et al. disclose every claimed feature except the type of material used in the Optical Parametric Oscillator.

Mead et al. disclose a variety of materials that would be suitable for an OPO crystal

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such as Lithium triborate (LBO), beta-barium borate ("BBO"), cesium lithium borate ("CLBO"), etc. Mead et al. also disclose the use of a periodically poled material that could be used to lower the threshold for oscillation of the OPO.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use any type of material for the OPO in order to meet the need of the user of the device.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Kawakami et al.* (US 2005/0226815 A1) in view of *Walling et al.* (US 5,606,453).

As to **claim 7**, Kawakami et al. disclose substantially every claimed feature of the device. Kawakami et al. does not specifically set forth additional non-linear optical devices for extending spectral ranges of the device. Kawakami et al. illustrate an OPO and a YAG laser with a Third Harmonic Generator (THG) and a Second Harmonic Generator (SHG) in between them, but is silent to the function of the generators.

In the paragraph bridging columns 6 and 7, Walling et al. teach that the use of a second and third harmonic generator permits the OPO to operate at new frequencies.

It would have been obvious to one having ordinary skill in the art at the time of invention was made to include the second and third harmonic generators in the device of Kawakami et al. in order to extend the spectral ranges of the device.

Conclusion

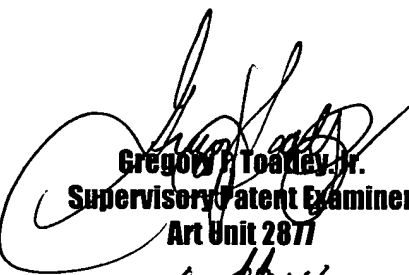
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *Miranda* (US 3,628,872) discloses a device for monitoring the transmission through a target in which the light source and the detector are positioned on the same side of the target.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica L. McMillan whose telephone number is (571) 272-5510. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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Supervisory Patent Examiner
Art Unit 2877
3/27/06

JLM
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